UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,171	12/31/2003	Byron L. Zerphy	08943.0002	6941

22852 7590 09/06/2006

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
GOKHALE, SAMEER K	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,171	ZERPHY ET AL.	
	Examiner	Art Unit	
	Sameer K. Gokhale	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,15-27 and 29* is/are rejected.

7)☒ Claim(s) *14 and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 15-17, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by McClintock (US 6,956,541).

Regarding claim 15, McClintock teaches a method of sign display panel communication, wherein the sign display panel comprises a controller electrically connected to a set of display units (Fig. 1B), the method comprising: setting a timer to a time interval (see col. 13, line 3); receiving a series of communication integrity messages from the controller (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link); resetting the timer to the time interval upon receipt of each of the plurality of communication integrity messages (see col. 13, line 3, where there is inherently a resetting of the timer here); and sending an error message to be received by the controller when the timer expires after the time interval (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

Regarding claim 16, McClintock teaches a display unit configured for use in a sign display panel comprising a controller electrically connected to a set of display units (Fig. 1B), the display unit comprising: a central processing unit (Fig. 2, computer 206, see col. 7, lines 39-40); a timer set to a time interval (see col. 13, line 3); an I/O interface for receiving a series of communication integrity messages from the controller (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link); and memory (see col. 7, lines 42-43) for storing display unit software configured for execution by the central processing unit (see col. 8, lines 17-19), wherein the display unit software comprises instructions for resetting the timer to the time interval upon receipt of each of the series of communication integrity messages (see col. 13, line 3, where there is inherently a resetting of the timer here) and, if the timer expires, generating an error message to be received by the controller (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

Regarding claim 17, McClintock further teaches a display unit wherein the error message comprises an indication of which display unit sent the error message (see col. 12, lines 28-31, and see col. 14, lines 20-22, where the error message was considered the ping sent from the display unit to the controller and it is inherent that the ping message contains address information on which display unit sent the message).

Regarding claim 29, McClintock teaches a system for sign display panel communication wherein the sign display panel comprises a controller and a set of display units (Fig. 1B), the system of communication comprising: means for sending a message from the controller to at least one of the set of display units (Fig. 1B, where the connection between the controller and the display unit is the means to send the message); means for receiving the message at the at least one of the set of display units (Fig. 1B, where the connection between the controller and the display unit is the means to receive the message); and means for sending an indication of the error from the one display unit to be received by the controller if any of the at least one display units detects an error in the message (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-13, 18-19, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClintock in view of Matsuzaki et al. (US 6,492,982) (hereafter, "Matsuzaki").

Regarding claim 1, McClintock teaches a sign display panel comprising: a controller (Fig. 1B, controller 112) connected to a set of display units (Fig. 1B, 132 - 142), the controller comprising a central processing unit (see col. 6, lines 30-31, where the controller is a computing device so it inherently has a CPU) and a memory (see col. 6, lines 43-44) for storing controller software (see col. 6, lines 30-33) configured for execution by the central processing unit wherein the controller software comprises instructions for sending a message to at least one of the set of display units (see col. 6, lines 30-33); and each one of the display units comprising a central processing unit (Fig. 2, computer 206, see col. 7, lines 39-40) and a memory (see col. 7, lines 42-43) for storing display unit software configured for execution by the central processing unit wherein the display unit software comprises instructions for detecting an error (see col. 8, lines 17-19) and, if the error is detected, sending an error message to be received by the controller (Fig. 8A, 802 and 804, see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller). However, McClintock does not explicitly teach detecting an error in the message.

However, Matsuzaki does teach a display panel connected to a local controller (Fig. 1) that detects an error in the message sent from the controller (see col. 5, lines 64-66, where the program data is the message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the display panel of McClintock in order to be able to fix errors in the display data before they become visible.

Regarding claim 2, Matsuzaki further teaches a sign display panel wherein the display unit software comprises instructions for detecting errors in parity (see col. 5, lines 64-65).

Regarding claim 3, McClintock further teaches a sign display panel wherein the controller software further comprises instructions for determining which one of the display units sent the error message (see col. 12, lines 28-31, and see col. 14, lines 20-22, where the error message was considered the ping sent from the display unit to the controller and it is inherent that the ping message contains address information on which display unit sent the message).

Regarding claim 4, McClintock further teaches sign panel wherein the controller software determines which of the set of the display units sent the error message based on an integer associated with the error message (see col. 12, lines 28-31, and see col. 14, where an address contains integers, therefore the location of the display unit that sent the ping message is based on at least one integer used in the address information).

Regarding claim 5, McClintock further teaches a sign panel wherein the integer indicates a position of the one display unit that sent the error message relative to each other display unit of the set of display units (see col. 12, lines 18-21, where it is inherent that network address information indicates the position of a display unit relative to each other display unit).

Regarding claim 6, McClintock teaches a method of sign display panel communication wherein the sign display panel comprises a controller (Fig. 1B, controller 112) and a set of display units (Fig. 1B, 132-142), the method of communication comprising: sending a message from the controller to at least one of the set of display units (see col. 6, lines 30-33); receiving the message at the at least one of the set of display units (see col. 8, lines 3-5, where the display information it receives must have come from the controller). However, McClintock does not explicitly teach sending an indication of the error from the one display unit to be received by the controller if any of the at least one display units detects an error in the message.

However, Matsuzaki does teach a display panel connected to a local controller where there is an event of sending an indication of the error from a display unit to be received by the controller if any of the at least one display units detects an error in the message (see col. 5, lines 64-66, where the program data is the message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the method of

McClintock in order to be able to fix errors in the display data before they become visible.

Regarding claim 7, McClintock further teaches a method further comprising determining which one of the set of display units sent the indication (see col. 12, lines 28-31, and see col. 14, lines 20-22, where the error message was considered the ping sent from the display unit to the controller and it is inherent that the ping message contains address information on which display unit sent the message).

Regarding claim 8, McClintock further teaches a method further comprising determining which of the display units sent the indication based on an integer associated with the indication (see col. 12, lines 28-31, and see col. 14, where an address contains integers, therefore the location of the display unit that sent the ping message is based on at least one integer used in the address information).

Regarding claim 9, McClintock teaches a display unit configured for use in a sign display panel comprising a controller (Fig. 1B, controller 112) electrically connected to a set of display units (Fig. 1B, 132-142), the display unit comprising: a central processing unit (Fig. 2, computer 206, see col. 7, lines 39-40); an interface for receiving a message sent by the controller (Fig. 1B, where the connection between the controller and the display unit is the interface); and memory (see col. 7, lines 42-43) for storing display unit software configured for execution by the central processing unit, wherein the display

unit software comprises instructions for detecting an error (see col. 8, lines 17-19) and, if the error is detected, sending an error message to be received by the controller (Fig. 8A, 802 and 804, see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller). However, McClintock does not explicitly teach detecting an error in the message.

However, Matsuzaki does teach a display panel connected to a local controller (Fig. 1) that detects an error in the message sent from the controller (see col. 5, lines 64-66, where the program data is the message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the display panel of McClintock in order to be able to fix errors in the display data before they become visible.

Regarding claim 10, Matsuzaki further teaches a The display unit wherein the display unit software comprises instructions for detecting errors in parity (see col. 5, lines 64-65).

Regarding claim 11, Matsuzaki further teaches a display unit wherein the display unit software further comprises instructions for determining if the message is at least one of a communication integrity message, a global message, or a local message (see col. 5, lines 44-67, where the display unit can determine if the message is a program data message which is a global message).

Regarding claim 12, Matsuzaki further teaches a display unit wherein the display unit software further comprises instructions for executing the message if the message is a global message (see col. 5, lines 56-60, where the program data message contains executable instructions for image adjustment).

Regarding claim 13, Matsuzaki further teaches a display unit wherein the display unit software further comprises instructions for reading an address byte of the message if the message is a local message (see col. 5, lines 44-67, where any message from the controller to the display unit can be considered a "local message" and where it is inherent that since networking is involved that the display unit can read an address byte of the message to determine its source).

Regarding claim 18, McClintock teaches a method of sign display panel communication, wherein the sign display panel comprises a controller electrically connected to a set of display units (Fig. 1B), the method comprising: sending a series of communication integrity messages to the set of display units (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link);

However, McClintock does not teach receiving a message from at least one of the set of display units in response to each of the series of communication integrity messages; and determining if the message indicates a communication error.

However, Matsuzaki does teach receiving a message from a display unit in response to each of the series of communication integrity messages; and determining if the message indicates a communication error (see col. 5, lines 64-67, where the controller receives a message from the display unit in response to the program data message, which includes a parity check thus making it an integrity message, and determines that the message indicates an error was sensed by the display device).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the method of McClintock in order to be able to fix errors in the display data before they become visible.

Regarding claim 19, Matsuzaki further teaches a method further comprising determining a location of the communication error based on the error message if the message indicates a communication error (see col. 5, lines 64-67, where in order for the controller to re-transmit the data to the display panel it must know the location of the error).

Regarding claim 21, McClintock further teaches a method further comprising: setting a timer to a time interval upon sending each of the communication integrity messages; and initiating a diagnostic utility if the timer expires before receiving the message (Fig. 7A, see col. 13, lines 20-42, where waiting for an acknowledgement to be returned by the display unit after sending a sync pulse indicates the use of a time

limit, and where the discovery process to determine the failure of a response is a diagnostic utility).

Regarding claim 22, McClintock teaches a controller configured for use with a sign display panel comprising the controller connected to a set of display units (Fig. 1B), the controller comprising: a central processing unit (see col. 6, lines 30-31, where the controller is a computing device); an I/O interface for sending a series of communication integrity messages to at least one of the set of display units (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link); and a memory (see col. 7, lines 42-43) comprising controller software configured for execution by the central processing unit (see col. 6, lines 30-33). However, it does not explicitly teach a controller determining an error in the communication network based on a message received in response to each of the series of communication integrity messages.

However, Matsuzaki does teach a controller determining an error in the communication to a display unit based on a message received in response to each of the series of communication integrity messages (see col. 5, lines 64-67, where the controller receives a message from the display unit in response to the program data message, which includes a parity check thus making it an integrity message, and determines that the message indicates an error was sensed by the display device).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the method of

McClintock in order to be able to fix errors in the display data before they become visible.

Regarding claim 23, McClintock further teaches a controller further comprising a timer set to a time interval, wherein the controller software further comprises instructions for resetting the timer to the time interval upon sending each of the series of communication integrity messages and initiating a diagnostic utility if no message is received before the timer expires message (Fig. 7A, see col. 13, lines 20-42, where waiting for an acknowledgement to be returned by the display unit after sending a sync pulse indicates the use of a time limit, and where the discovery process to determine the failure of a response is a diagnostic utility).

Regarding claim 24, Matsuzaki further teaches a controller of claim 22 wherein the instructions for determining further comprise determining a location of the error based on the message (see col. 5, lines 64-67, where there must be address or location information in the message sent from the display unit in order for the controller to properly re-transmit to the display unit).

Regarding claim 25, Matsuzaki further teaches a controller wherein the message comprises an integer associated with a display unit that sent the message and the instructions for determining a location of the error further comprise determining the display unit that sent the indication based on the integer (see col. 5, lines 44-67, where

it is inherent that since networking is involved that the display unit can read an address of the message to determine its source and where such an address constitutes an integer).

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClintock in view of Matsuzaki and further in view of Minami et al. (US 20050149632) (hereafter, "Minami").

Regarding claim 20, McClintock in view of Matsuzaki teaches the limitations of claim 19 as discussed above, and Matsuzaki further teaches an error message corresponding to a display unit that sent the error message (see col. 5, lines 64-67, where the retransmit request is an error message and the message corresponds to the display unit that sent it). However it does not teach a method wherein the error message is an

However, Minami does teach a networking method where a type of error message is an integer (see para. 13, where a retransmit message, which is the type of error message in Matsuzaki, can be a sequence number which is an integer).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Minami in the method of McClintock in view of Matsuzaki in order to have a quick method of announcing a retransmit message to a networking device.

6. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClintock in view of Cok (US 6,999,045).

Regarding claim 26, McClintock teaches a set of elements comprising: a controller comprising a central processing unit (see col. 6, lines 30-31, where the controller is a computing device) and a memory (see col. 6, lines 43-44) comprising controller software (see col. 6, lines 30-33) configured for execution by the central processing unit wherein the controller software comprises instructions for sending a series of communication integrity messages to the communication network (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link); and a set of display units wherein each one of the display units comprises: a timer set to a time interval (see col. 13, line 3); a central processing unit (Fig. 2, computer 206, see col. 7, lines 39-40); and a memory (see col. 7, lines 42-43) for storing display unit software (see col. 8, lines 17-19) configured for execution by the central processing unit wherein the display unit software comprises instructions for resetting the timer to the time interval upon receipt of each of the series of communication integrity messages (see col. 13, line 3, where there is inherently a resetting of the timer here) and, if the timer expires, sending an error message to the communication network to be received by the controller (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message

to the controller). However, it does not explicitly teach a set of sign display panel elements connected in a serial communication network wherein each element receives messages from a previous adjacent element and sends messages to a subsequent adjacent element.

However, Cok does teach a set of sign display panel elements connected in a serial communication network wherein each element receives messages from a previous adjacent element and sends messages to a subsequent adjacent element (Fig. 1, see col. 3, lines 2-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Cok in the display panel of McClintock in order to avoid the need for long buses with concomitant communications difficulties (see Cok, col. 4, lines 48-52).

Regarding claim 27, McClintock further teaches a set of sign display panel elements wherein the controller software further comprises instructions for determining a display unit that sent the error message based on the error message (see col. 12, lines 18-21, where it is clear that there is network address information used for communication that allows the controller to be able to determine the display unit that sent the error message).

Allowable Subject Matter

7. Claims 14 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Relative to dependent claim 14, the major difference between the prior art of record (McClintock, Matsuzaki, and Cok) and the instant invention is that said prior art does not teach a display unit comprising instructions for executing the message if the address byte is 0 or decrementing the address byte and sending the message to another display unit if the address byte is greater than zero.

Relative to dependent claim 28 the major difference between the prior art of record (McClintock, Matsuzaki, and Cok) and the instant invention is that said prior art does not teach a set of sign display panel elements wherein the error message comprises an integer greater than a total number of the set of display units and each display unit that receives the error message from the communication network decrements the integer.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Albert et al. (US 6,252,564) teaches a multi-display device that employs error-checking. Reeder (US 6,088,008) teaches a multi-display device that

has a method of verifying the integrity of the link between each display panel and the controller. Nishida (US 6,097,351) teaches a multi-display sign where each element is serially connected. Odryna (US 6,104,414) teaches a multip-display device that employs forward error correction.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer K. Gokhale whose telephone number is (571) 272-5553. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKG
September 1, 2006

Sameer Gokhale
Examiner
Art Unit 2629

AMR A. AWAD
PRIMARY EXAMINER